MANAGEMENT OF SUSPECTED ACUTE CORONARY SYNDROME IN EMERGENCY DEPARTMENT OF A UNIVERSITY HOSPITAL

UNIVERSITI MALAYA

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1. INTRODUCTION

- Ischaemic heart disease is the **leading cause of cardiovascular deaths** worldwide (1, 2, 3).
- In Malaysia, it was the **primary cause of medically certified deaths** in 2020, comprising 17.0% of the total (4).
- Goal of the Emergency Department (ED) is to perform a rapid assessment, establish an early diagnosis, and initiate appropriate therapy promptly.
- **Failure to diagnose** patients in the ED can result in **unnecessary admissions, escalating healthcare expenditure,** while **unintentionally discharging** patients with acute myocardial infarction **jeopardises their safety.**
- Knowledge of the epidemiology and outcome of ACS cases in the ED is crucial for hospital managers to **optimize resource allocation, capacity planning, quality improvement initiatives, patient safety measures, and financial management** related to ACS care.

2. OBJECTIVE

- This study aims to describe suspected cases of ACS and assess the management practices within the ED at a University Hospital.
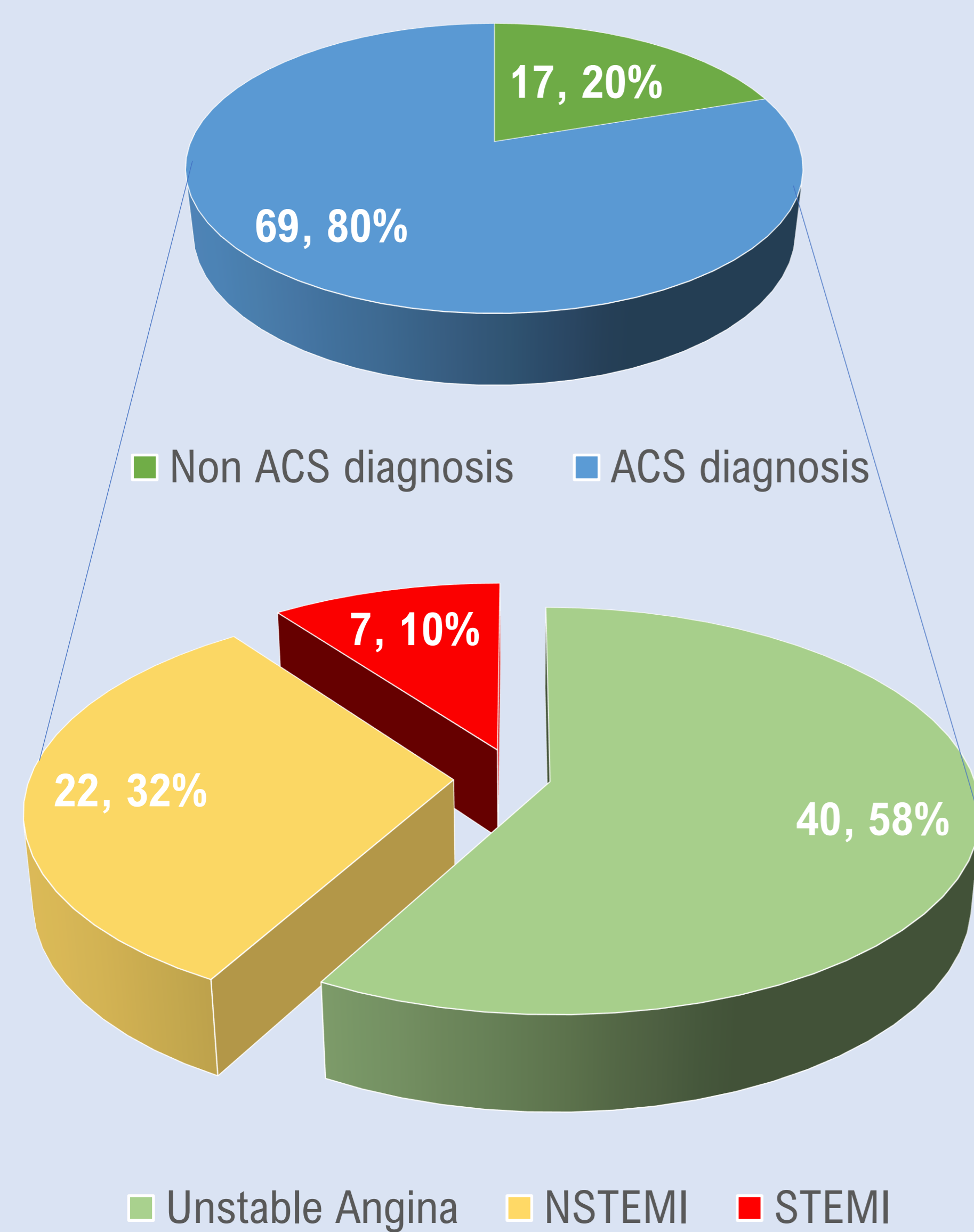
3. METHODOLOGY

- This is a cross-sectional study, using data from electronic medical records
- Patients who presented to the ED between June and September 2022, with ICD-10 diagnoses related to ACS were included.
- A total of 86 patients were included in the data analysis, encompassing sociodemographic information, clinical characteristics, ED management and outcomes.
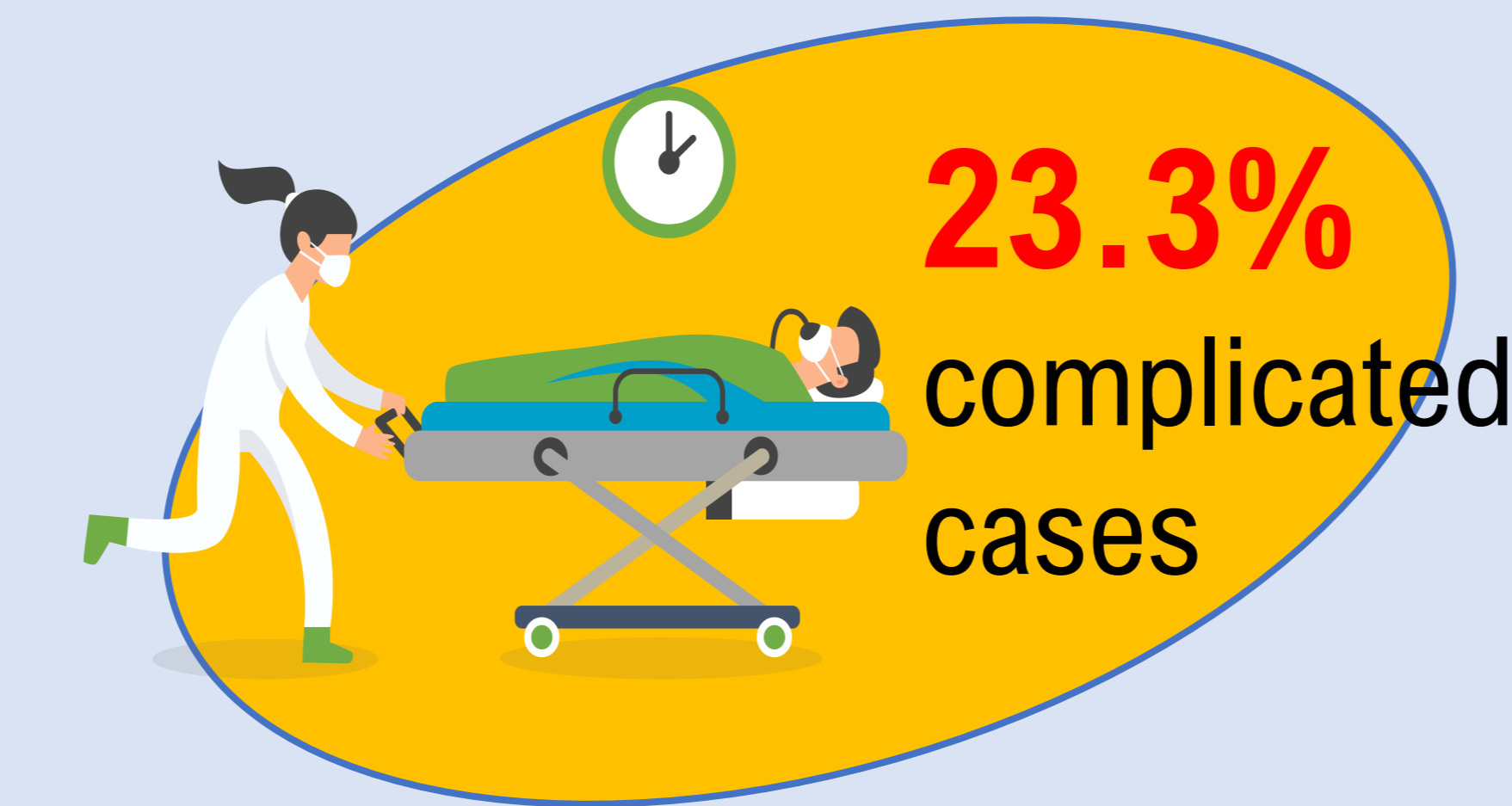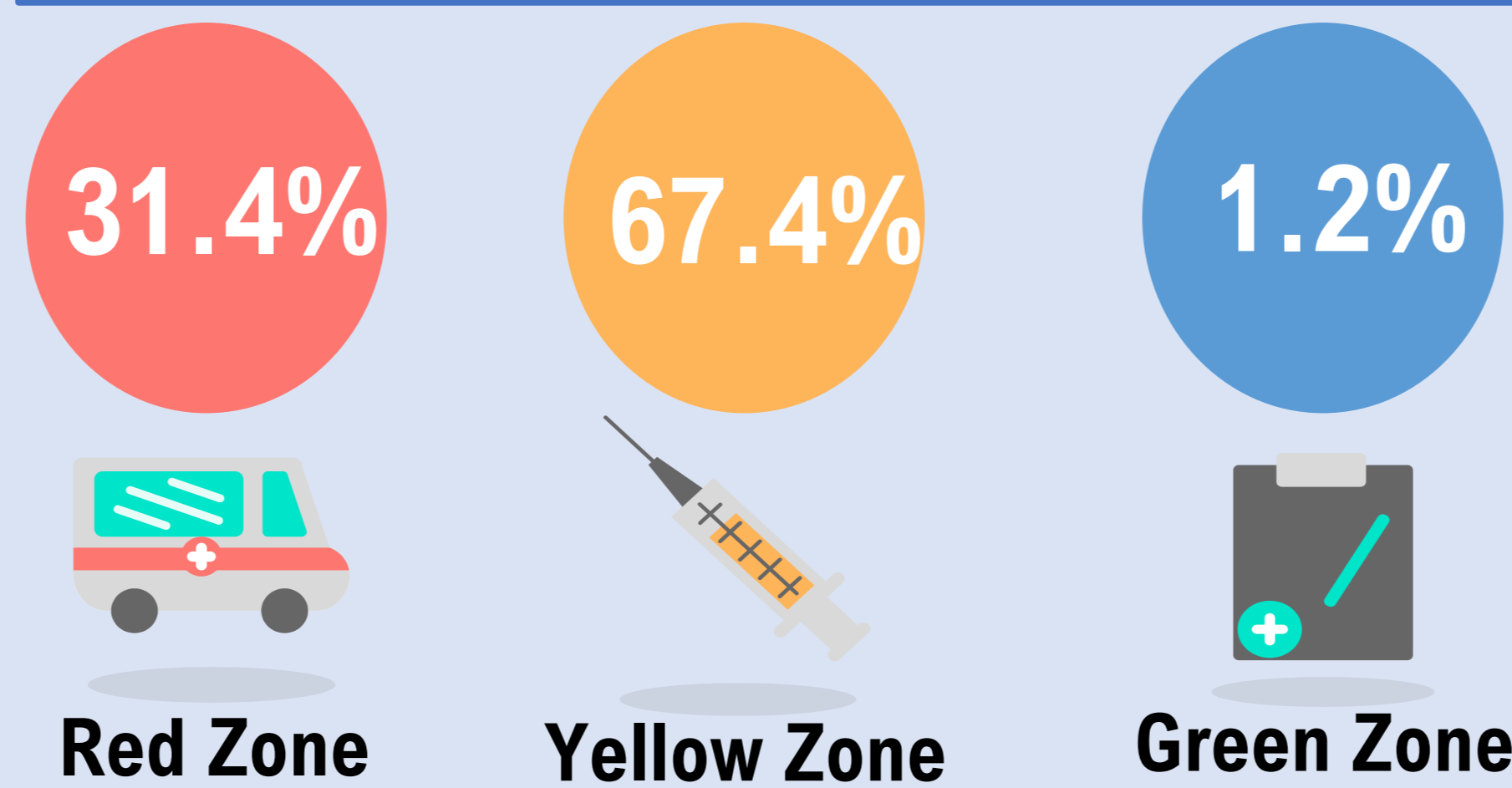
4. RESULTS & DISCUSSIONS

Table 1: Sociodemographic characteristics of all patients (n=86)

Variables	N (%) / mean (±SD)
Age	59.87 (± 14.06)
Gender	
Male	59 (68.6)
Female	27 (31.4)
Ethnicity	
Malay	35 (40.7)
Chinese	25 (29.1)
Indian	24 (27.9)
Others	2 (2.3)

Figure 1: Proportion of ACS diagnosis of all suspected ACS cases (n=86)

17, 20% — 69, 80%
■ Non ACS diagnosis ■ ACS diagnosis

7, 10% — 22, 32% — 40, 58%
■ Unstable Angina ■ NSTEMI ■ STEMI

PATIENT TRIAGING

31.4% **Red Zone**
67.4% **Yellow Zone**
1.2% **Green Zone**

23.3% complicated cases

PATIENT TRANSPORTATION TO ED

Ambulance transport	**3.5%**
Own transport	94.2%
Others	2.3%
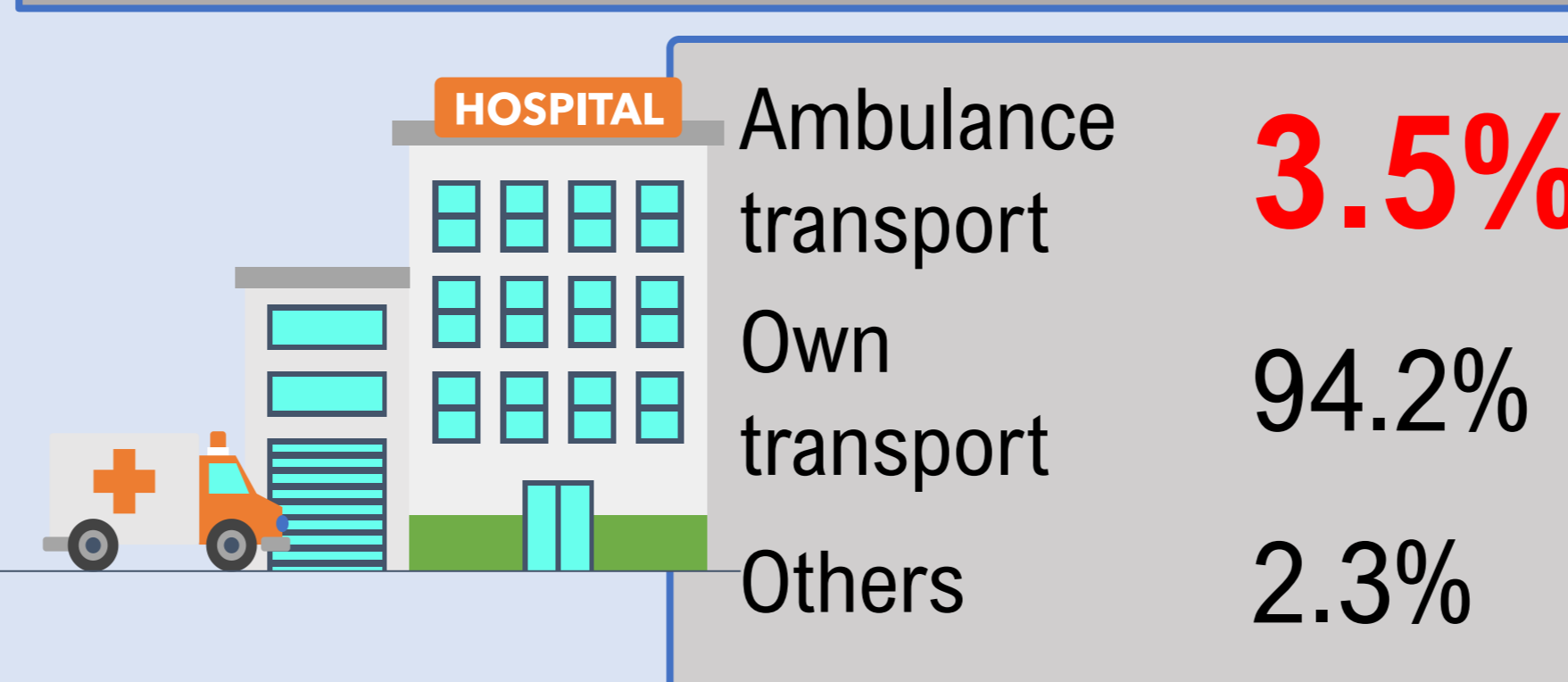
Figure 2: Disposition outcome of admitted patients (n=66)

ICU 9
Cardio Ward 57

0 10 20 30 40 50 60

HOSPITAL

Median Length of ED stay (IQR) **9.46 (5.0) hours**
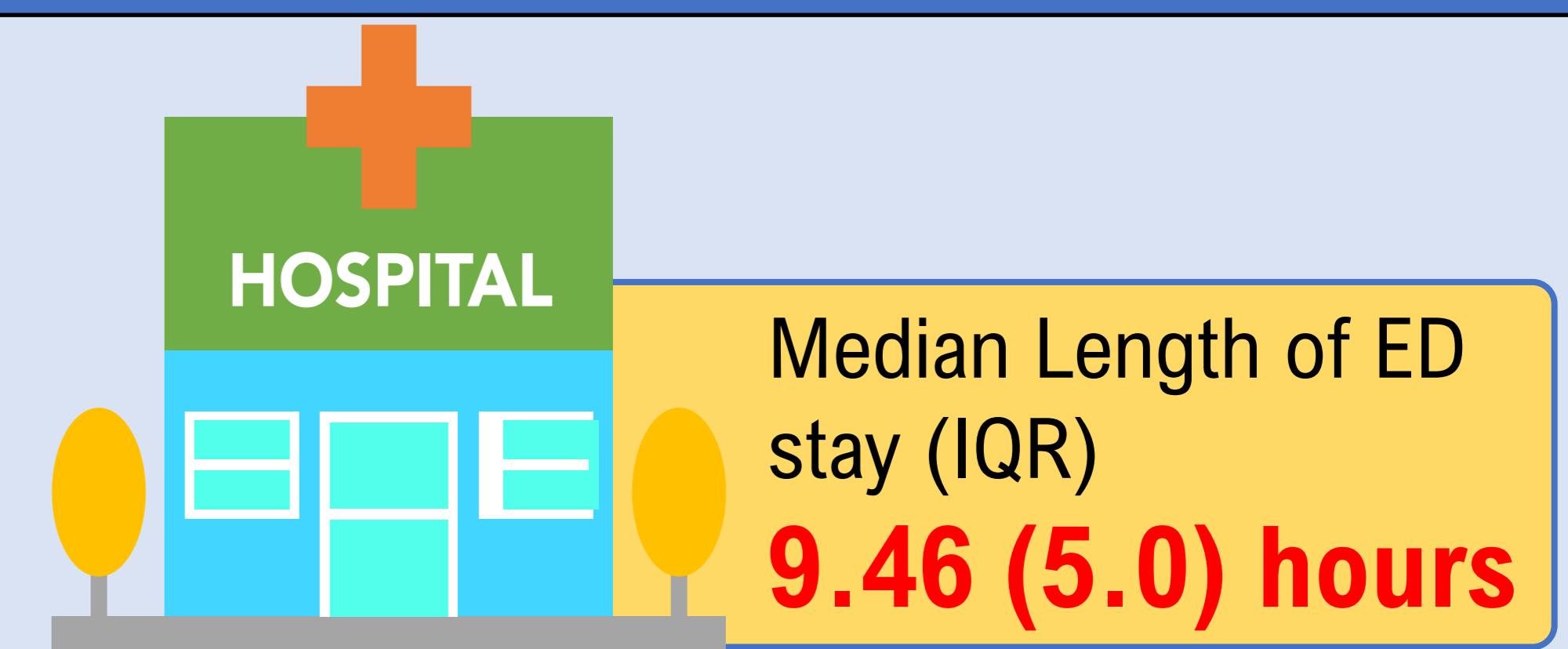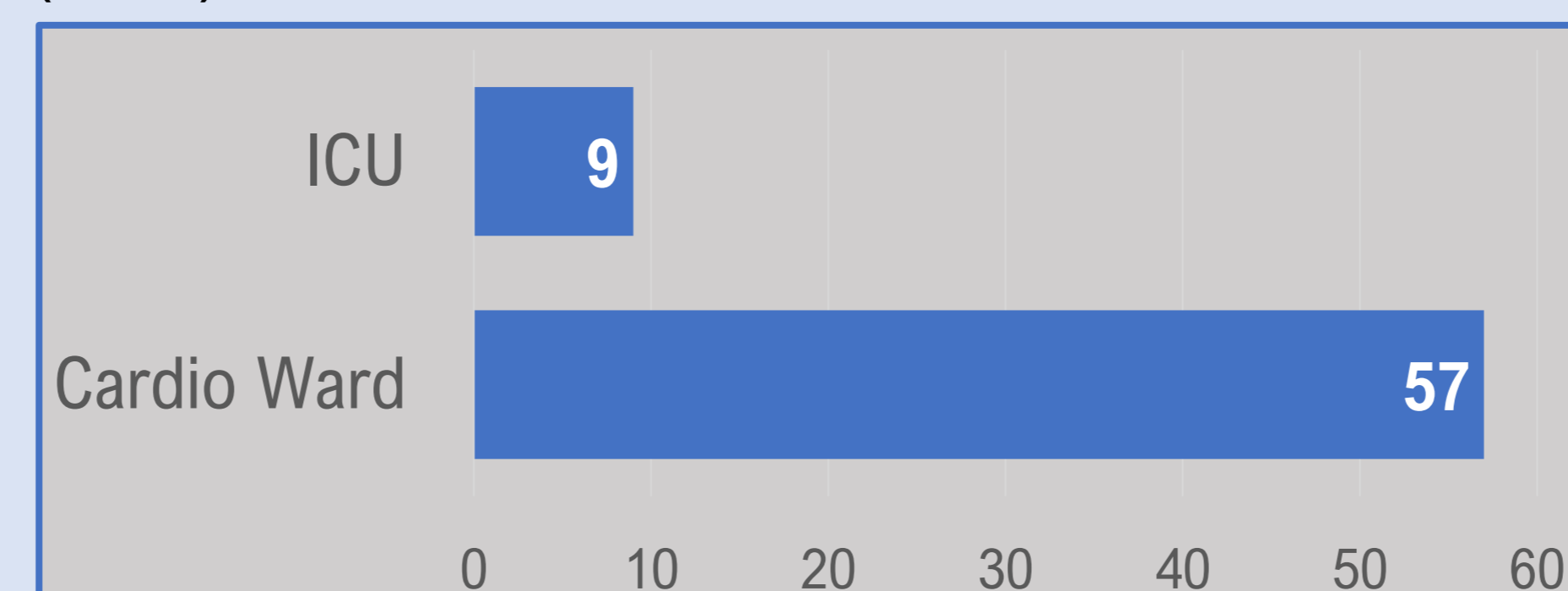
Table 2: Comparing Median for Length of Stay in ED (n=86)

Variables	Median (IQR)	P value
Triage*		0.100
Red	9.00 (7.08)	
Yellow	8.25 (4.53)	
Green	-	
Disposition outcome*		<0.001
Admit	8.55 (5.37)	
Discharge	4.73 (4.93)	
Cath Lab	-	
AOR discharge	7.65 (12.74)	
Admission to**		0.543
Ward	8.40 (5.07)	
Intensive care	10.02 (7.66)	
Diagnosis*		<0.001
STEMI	6.32 (2.43)	
NSTEMI	9.68 (7.49)	
Unstable angina	8.40 (4.27)	
Stable angina	6.62 (4.40)	
Others	4.78 (4.93)	
Complicated ACS**		0.041
Yes	10.59 (7.94)	
No	7.75 (4.2)	

*Kruskal Wallis Test
** Mann-Whitney U Test

5. DISCUSSION

- Findings of this study help in understanding the distribution and relative frequency of different types of ACS presenting to ED.
- It's important to note that despite **17 cases (19.77%) not being diagnosed as ACS,** with majority of them being discharged (n=14, 82.35%), they would still **utilise similar resources as ACS cases,** particularly during the initial assessment and investigations.
- As nearly **a quarter of cases presented with complications**, healthcare manager can estimate that these cases may **require higher resource utilisation** while being treated.
- **Utilisation of ambulances was relatively low** (n=3, 3.49%) indicating **potential gaps in timely emergency medical services**. Initiation of treatment for suspected ACS cases may be delayed as it can be started during the ambulance transport itself should they use the ambulance services.
- The **triage** was based on patient symptoms and general conditions and **helped guide resource allocation and ensure timely care.** However, there was also a patient investigated for ACS treated in Green Zone which may have negative implications to the patient.
- The **LOS in ED exceed 4 hours** which highlight the need to **streamline processes, implement efficient workflows, and optimize resource utilisation to reduce ED overcrowding and enhance patient flow.**

6. CONCLUSION

- These findings offer valuable insights into the epidemiology, clinical presentation, management, and outcomes of suspected ACS cases in the ED, emphasizing the necessity for efficient triage, timely interventions, and appropriate disposition strategies to optimize patient care and outcomes.
- Further research is needed to explore potential strategies for improving ACS management in the ED and reducing patient length of stay.

References
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